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16 May 1956

Chief, R&D Branch

Chief, R&D Laboratory

Receiver for Project

25X1

1. In accordance with verbal arrangements, the R&D Laboratory has packaged a transistorized, crystal-controlled receiver for operation in the 3 - 12 mcs frequency range. It is the purpose of this memorandum to review the basic characteristics of this receiver. O&T has requested that they be permitted to make a brief study of the receiver to determine possible application within their division. The unit will be forwarded for that purpose on 22 May. At the conclusion of the O&T study the receiver can be passed to SPD.

2. An outline of the characteristics of the receiver and its accessory units follows:

A. Receiver

(a) Type

Superheterodyne, crystal-controlled dual conversion.

(b) Frequency Range

3 to 6 mc and 6 to 12 mc in two bands.

(c) Power Input

6 volts at 6 ma.

(d) Rejection Ratios

1st IF (1500 kc): 30 db min.

2nd IF (455 kc): 70 db min.

Image: 10 db at the high end of band 2. A minimum of 20 db in all remaining regions.

(e) Spurious Frequencies

The simplicity of the circuits employed in the receiver results in relatively low isolation between oscillators. This fact gives rise to some objectionable spurious frequencies as a result of interaction. These frequencies are listed below. It is recommended that operating frequency assignments avoid the spurious frequencies by plus or minus 50 kcs.

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4365 kcs	8255 kcs
5410 kcs	9320 kcs
6320 kcs	10230 kcs
7365 kcs	11270 kcs

(f) Sensitivity

Three to ten microvolts, depending upon crystal activity, for five milliwatt output.

(g) Dimensions

4 7/8" x 3 7/16" x 1 5/8"

(h) Weight

20 ounces (with battery)

B. Power Supply

The receiver uses a self-contained power supply which consists of a 5-cell rechargeable nickel-cadmium battery. The nominal battery ratings are 6 volts and 120 mah. Battery life is estimated at several hundred charge and discharge cycles.

C. Solar Charger

The solar charger is constructed from 28 silicon solar cell wedges connected in series. The charging capabilities into the 5-cell nickel-cadmium battery are as follows:

Noonday sun, clear, 25 ma
Noonday sun, overcast, 6 ma

The charger dimensions are 4 7/8" x 3 7/16" x 9/16". It weighs 9 ounces.

D. Accessories

In addition to the receiver and charger, the following accessories will be supplied:

- (a) One spare battery supply
- (b) 50 ft. "hank" antenna
- (c) Earset and cord
- (d) Spare charger cord

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E. Operating Notes and Instructions

The operating notes and instructions, which will accompany the receiver on final delivery, will discuss the characteristics outlined above in greater detail.



25X1

Lab/NCP/rkb (16 May 1956)

Distribution:

- Original and 1 - Addressee
- 1 - Lab Subj. Copy
- 1 - Dev/s

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